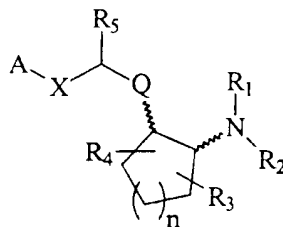


CLAIMS

What is claimed is:

1. A compound of formula (I), or a solvate or pharmaceutically acceptable salt thereof:



(I)

wherein, independently at each occurrence,

n is selected from 1, 3 and 4;

Q is either O (oxygen) or $-O-C(O)-$;

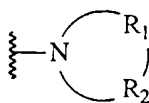
X is selected from a direct bond, $-C(R_6, R_{14})-Y-$, and $-C(R_{13})=CH-$;

Y is selected from a direct bond, O, S, and C_1-C_4 alkylene;

R_{13} is selected from hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, aryl, and benzyl;

R_1 and R_2 are independently selected from hydrogen, C_1-C_8 alkyl, C_3-C_8 alkoxyalkyl, C_1-C_8 hydroxyalkyl, and C_7-C_{12} aralkyl; or

R_1 and R_2 , when taken together with the nitrogen atom to which they are directly attached in formula (I), form a ring denoted by formula (II):



(II)

wherein the ring of formula (II) is formed from the nitrogen as shown as well as three to nine additional ring atoms independently selected from carbon, nitrogen, oxygen, and sulfur; where any two adjacent ring atoms may be joined together by single or double bonds, and where any one or more of the additional carbon ring atoms may be substituted with one or two substituents selected from hydrogen, hydroxy, C_1-C_3 hydroxyalkyl, oxo, C_2-C_4 acyl,

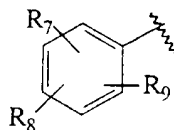
C₁-C₃alkyl, C₂-C₄alkylcarboxy, C₁-C₃alkoxy, C₁-C₂₀alkanoyloxy, or may be substituted to form a spiro five- or six-membered heterocyclic ring containing one or two heteroatoms selected from oxygen and sulfur; and any two adjacent additional carbon ring atoms may be fused to a C₃-C₈carbocyclic ring, and any one or more of the additional nitrogen ring atoms may be substituted with substituents selected from hydrogen, C₁-C₆alkyl, C₂-C₄acyl, C₂-C₄hydroxyalkyl and C₃-C₈alkoxyalkyl; or

R₁ and R₂, when taken together with the nitrogen atom to which they are directly attached in formula (I), may form a bicyclic ring system selected from 3-azabicyclo[3.2.2]nonan-3-yl, 2-azabicyclo[2.2.2]octan-2-yl, 3-azabicyclo[3.1.0]hexan-3-yl, and 3-azabicyclo[3.2.0]heptan-3-yl;

R₃ and R₄ are independently attached to the cycloalkyl ring shown in formula (I) at other than the 1 and 2 positions and are independently selected from hydrogen, hydroxy, C₁-C₆alkyl, and C₁-C₆alkoxy, and, when both R₃ and R₄ are attached to the same cycloalkane ring atom, may together form a spiro five- or six-membered heterocyclic ring containing one or two heteroatoms selected from oxygen and sulfur;

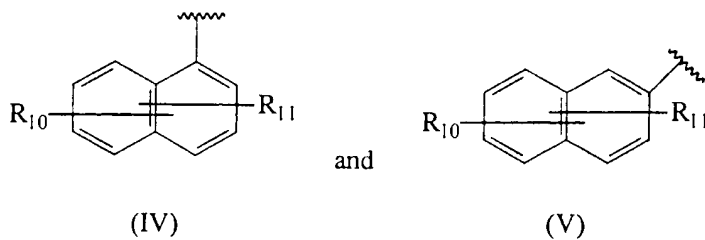
R₅, R₆ and R₁₄ are independently selected from hydrogen, C₁-C₆alkyl, aryl and benzyl, or R₆ and R₁₄, when taken together with the carbon to which they are attached, may form a spiro C₃-C₅cycloalkyl;

A is selected from C₅-C₁₂alkyl, a C₃-C₁₃carbocyclic ring, and ring systems selected from formulae (III), (IV), (V), (VI), (VII) and (VIII):

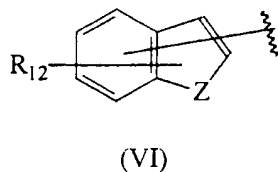


(III)

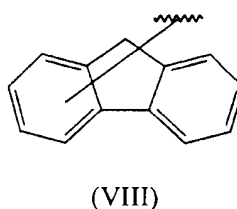
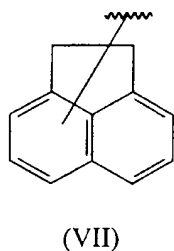
where R₇, R₈ and R₉ are independently selected from bromine, chlorine, fluorine, carboxy, hydrogen, hydroxy, hydroxymethyl, methanesulfonamido, nitro, sulfamyl, trifluoromethyl, C₂-C₇alkanoyloxy, C₁-C₆alkyl, C₁-C₆alkoxy, C₂-C₇alkoxycarbonyl, C₁-C₆thioalkyl, aryl and N(R₁₅,R₁₆) where R₁₅ and R₁₆ are independently selected from hydrogen, acetyl, methanesulfonyl, and C₁-C₆alkyl;



where R_{10} and R_{11} are independently selected from bromine, chlorine, fluorine, carboxy, hydrogen, hydroxy, hydroxymethyl, methanesulfonamido, nitro, sulfamyl, trifluoromethyl, C_2 - C_7 alkanoyloxy, C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_2 - C_7 alkoxycarbonyl, C_1 - C_6 thioalkyl, and $N(R_{15}, R_{16})$ where R_{15} and R_{16} are independently selected from hydrogen, acetyl, methanesulfonyl, and C_1 - C_6 alkyl;



where R_{12} is selected from bromine, chlorine, fluorine, carboxy, hydrogen, hydroxy, hydroxymethyl, methanesulfonamido, nitro, sulfamyl, trifluoromethyl, C_2 - C_7 alkanoyloxy, C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_2 - C_7 alkoxycarbonyl, C_1 - C_6 thioalkyl, and $N(R_{15}, R_{16})$ where R_{15} and R_{16} are independently selected from hydrogen, acetyl, methanesulfonyl, and C_1 - C_6 alkyl; and Z is selected from CH , CH_2 , O , N and S , where Z may be directly bonded to "X" as shown in formula (I) when Z is CH or N , or Z may be directly bonded to R_{17} when Z is N , and R_{17} is selected from hydrogen, C_1 - C_6 alkyl, C_3 - C_8 cycloalkyl, aryl and benzyl;



including isolated enantiomeric, diastereomeric and geometric isomers thereof, and mixtures thereof.

2. A compound, or mixture comprising compounds, selected from the group consisting of:

(1R,2R)/(1S,2S)-2-(4-Morpholinyl)-1-(2-naphthalenethoxy)cyclopentane; and
(1R,2R)/(1S,2S)-2-(3-Ketopyrrolidinyl)-1-(2,6-dichlorophenethoxy)cyclopentane,
and pharmaceutically acceptable salts and solvates thereof.

3. A composition comprising a compound according to any one of claims 1 or 2 in combination with a pharmaceutically acceptable carrier, excipient or diluent.

4. Use of a compound according to any one of claims 1 or 2 in a manufacture of a medicament.

5. A compound or composition according to any one of claims 1-3 for use in a method for treating or preventing arrhythmia in a warm-blooded animal.

6. A compound or composition according to any one of claims 1-3 for use in a method for modulating ion channel activity in a warm-blooded animal.

7. A compound or composition according to any one of claims 1-3 for use in a method for modulating ion channel activity *in vitro*.

8. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent diseases of the central nervous system in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

9. A method for treating or preventing diseases of the central nervous system in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 8.

10. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent convulsion in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

11. A method for treating or preventing convulsion in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 10.

12. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent epileptic spasms in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

13. A method for treating or preventing epileptic spasms in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 12.

14. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent depression, anxiety or schizophrenia, in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

15. A method for treating or preventing depression, anxiety or schizophrenia, in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 14.

16. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent Parkinson's disease in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

17. A method for treating or preventing Parkinson's disease in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 16.

18. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent respiratory disorders in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

19. A method for treating or preventing respiratory disorders in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 18.

20. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent cystic fibrosis in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

21. A method for treating or preventing cystic fibrosis in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 20.

22. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent asthma in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

23. A method for treating or preventing asthma in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 22.

24. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent a cough in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

25. A method for treating or preventing a cough in a warm-blooded animal comprising administration of a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 24.

26. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent inflammation in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

27. A method for treating or preventing inflammation in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 26.

28. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent arthritis in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

29. A method for treating or preventing arthritis in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 28.

30. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent allergies in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

31. A method for treating or preventing allergies in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 30.

32. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent gastrointestinal disorders in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

33. A method for treating or preventing gastrointestinal disorders in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 32.

34. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent urinary incontinence in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

35. A method for treating or preventing urinary incontinence in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 34.

36. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent irritable bowel syndrome in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

37. A method for treating or preventing irritable bowel syndrome in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 36.

38. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent cardiovascular diseases in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

39. A method for treating or preventing cardiovascular diseases in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 38.

40. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent cerebral or myocardial ischemias in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

41. A method for treating or preventing cerebral or myocardial ischemias in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 40.

42. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent hypertension in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

43. A method for treating or preventing hypertension in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 42.

44. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent long-QT syndrome in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

45. A method for treating or preventing long-QT syndrome in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 44.

46. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent stroke in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

47. A method for treating or preventing stroke in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 46.

48. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent migraine in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

49. A method for treating or preventing migraine in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 48.

50. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent ophthalmic diseases in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

51. A method for treating or preventing ophthalmic diseases in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 50.

52. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent diabetes mellitus in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

53. A method for treating or preventing diabetes mellitus in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 52.

54. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent myopathies in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

55. A method for treating or preventing myopathies in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 54.

56. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent Becker's myotonia in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

57. A method for treating or preventing Becker's myotonia in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 56.

58. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent myasthenia gravis in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

59. A method for treating or preventing myasthenia gravis in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 58.

60. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent paramyotonia congenita in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

61. A method for treating or preventing paramyotonia congenita in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 60.

62. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent malignant hyperthermia in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

63. A method for treating or preventing malignant hyperthermia in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 62.

64. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent hyperkalemic periodic paralysis in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

65. A method for treating or preventing hyperkalemic periodic paralysis in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 64.

66. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent Thomsen's myotonia in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

67. A method for treating or preventing Thomsen's myotonia in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 66.

68. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent autoimmune disorders in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

69. A method for treating or preventing autoimmune disorders in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 68.

70. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent graft rejection in organ transplantation or bone marrow transplantation in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

71. A method for treating or preventing graft rejection in organ transplantation or bone marrow transplantation in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 70.

72. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to produce local analgesia or anesthesia in a warm-blooded animal in need thereof, and a pharmaceutically acceptable carrier, diluent, or excipient.

73. A method for producing local analgesia or anesthesia in a warm-blooded animal in need thereof comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 72.

74. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent heart failure in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

75. A method for treating or preventing heart failure in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 74.

76. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent hypotension in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

77. A method for treating or preventing hypotension in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 76.

78. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent Alzheimer's disease in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

79. A method for treating or preventing Alzheimer's disease in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 78.

80. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent dementia in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

81. A method for treating or preventing dementia in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 80.

82. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to treat or prevent alopecia in a warm-blooded animal in need of the treatment or prevention, and a pharmaceutically acceptable carrier, diluent, or excipient.

83. A method for treating or preventing alopecia in a warm-blooded animal comprising administering to a warm-blooded animal in need thereof a therapeutically effective amount of a compound according to claims 1 or 2 or a composition according to claim 82.

84. A pharmaceutical composition comprising an amount of a compound according to claims 1 or 2 effective to enhance libido in a warm-blooded animal in need thereof, and a pharmaceutically acceptable carrier, diluent, or excipient.

85. A method for enhancing libido in a warm-blooded animal in need thereof comprising administering to a warm-blooded animal in need thereof an enhancing amount of a compound according to claims 1 or 2 or a composition according to claim 84.